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GUY P. JONES
EDITOR

*Looking Ahead in Preventive Medicine**

MEDICAL COLLEGE OF VIRGINIA

COMMENCEMENT ADDRESS

JUNE 1, 1937

By HOWARD W. BLAKESLEE, Associated Press Science Editor

I bring you today a prediction of the future of medicine. The prediction comes from nine of the wise men of medicine. The prediction comes at a good time, just one year short of your 100th anniversary, for most of the advances on which the forecast rests were made during that 100 years, and you were part of some of them.

The first man was Dr. Simon Flexner of the Rockefeller Institute for Medical Research. He said:

"I never give interviews."

He did not break this rule. That is, he gave me no words of his own. But he led me to the library and there marked publications for me to read. Some were medical. Others dealt with scientific discoveries which have stirred the imagination of the world.

One was the quantum theory, which takes account of the things which are not directly observable. Others were relativity, the mysterious expanding nature of the universe, and the new ideas of geological time which make the age of the earth three billion years.

* Extract from Commencement Address, Medical College of Virginia, June 1, 1937.

There was also the discovery of isotopes, that is, the variability of atoms. As a result of that discovery the 92 chemical elements of the earth, which have been the basis of all the medicines of the past, have been multiplied into 250 variations. Every one is potentially useful for medicine.

Some, like the hydrogen isotope which makes heavy water, are already in use to enable medical men to trace invisible trails of the living processes in the human body.

There was artificial radio activity. This alone has already produced something like 40 new kinds of radio activity. There were discoveries in low temperatures down almost to absolute zero. Although absolute zero means universal death of all energy, yet these discoveries have shown that this absolute death is probably impossible.

There was the astounding evidence of high temperature in the stratosphere, the rise of radio and the new air mass method of weather forecasting. There was all the new work in radiation. This included thermionic valves and the sensitive instruments with

whose aid medical pioneers are beginning to identify the electrical action of the human brain.

There was man's ancestry as found by evolution. Here were new conceptions of the dignity of man's long past, and hints of the origins of human traits with which every medical man and every philosopher has to deal.

In the more strictly medical field was the discovery of vitamins, and the work on diet and deficiency diseases. There were the discoveries of bacteria, of bacteriophage and of the viruses. Already the virus discoveries have proved that in the presence of life, nonliving substances can organize themselves into units that have every attribute of independently living things. Some of these units have been identified as the cause of disease. They suggest the solution of problems which have completely baffled both science and medicine.

Other discoveries were the measurement of heat production by muscles and by nerves and the therapeutic application of X-rays and gamma-rays. There were genetics, nuclear structure, chromosomes, chemical catalysis and adsorption.

The last writing that Dr. Flexner designated explained all these that went before. It was an address by one of the great men of all time in medicine, the late Dr. William Henry Welch. Its title was "The Interdependence of Medicine and the other Sciences of Nature." It painted the picture of the medical man reaching out for aid to all the other sciences. It showed him traveling in cycles, sometimes to one field of science, sometimes to another, but always returning in the end to the advice of Hippocrates to assay the facts in his own clinical field.

Next I wrote to eight other men famous in medicine. I asked them to name the fields where the greatest medical interest and progress may be expected.

They named ten. Two ranked first with five votes each. Nutrition and chemistry. Many scientists believe that nutrition holds the most quickly applicable hope of longer life with full vigor almost to the end. Chemistry has given medicine hundreds of useful preparations, but chemists foresee hundreds of thousands of others which now do not even exist.

Second place was given to the endocrine glands, the internal secretions which directly regulate the human body and probably account for sanity itself. Third came immunology and psychology. In the fourth place were three sciences, physics, bacteriology and the very new science of group research. In the fifth place were allergy and physiology.

Sir Frederick G. Banting, discoverer of insulin, wrote: "I look forward to the greatest development being made in the application of physics and chem-

istry—particularly organic chemistry—to the problems of medicine."

Significant, he pointed out, is the fact that organic chemistry has supplied most of the contributions in recent years to nutrition, to endocrine glands and immunology. Even in physiological medicine, he said, the great advance of the future is likely to come from understanding the chemical processes in the activity of nerve cells.

The co-discoverer of insulin, Professor C. H. Best, likewise stressed organic chemistry. He predicted it would be applied to the gland products in medicine to a degree never before possible.

Dr. Best also emphasized physics and nutrition. He credited much of the interest in nutrition to the necessity of planning relief diets.

Old time medical pictures show the doctor measuring his medicine drop by drop. Today he measures the invisible, and the new method is called quantitation.

This method is seen as one of the important future steps of medicine by Dr. Frank Charles Mann of the Mayo Clinic.

"The thing that has been so sadly needed in medicine," he wrote, "is methods of measurement. It is questionable if insulin would have been discovered if methods for measuring the glucose content of the blood had not been so much better in 1921 than they were in 1912."

The kind of measurement he predicted will permit the use of isotopes in studying metabolic processes.

Dr. E. C. Rosenow, of the Mayo Clinic, said that much new light is yet to come from a study of the bacteriology and immunology of various diseases. This may happen in diseases which at present are not even considered as possibly being due to infection.

The always conservative leader of the American Medical Association, Dr. Morris Fishbein, took the farthest look ahead. He said it is conceivable that the eventual and final phase of medicine will be psychologic.

"This, of course," he said, "will come when life expectancy at birth for the majority of people is 70 years."

At present, he said, the predominant phases of medicine are allergy, nutrition and glandular research.

Two of the medical directors of the U. S. Public Health Service were consulted. They were Dr. J. P. Leake and Dr. G. W. McCoy. They stressed endocrine gland research, nutrition, physical chemistry, bacteriology, immunology, metabolic physiology and psychology.

Something that would not have been believable 10

years ago is now rising above the new medical horizon. This is the similarity between the sex hormones, the coal tars which cause cancer, some vitamins and some of the human body's natural acids.

One pure human sex hormone has been found in date palm kernels and in willow flowers.

Dr. Francis Carter Wood of Columbia University, pointing to this new field, said:

"I think the future in general medicine points toward a great extension in chemistry of a type which has synthesized sex hormones, the carcinogenic substances and the vitamins. The interaction between these various substances and the organs of internal secretion make an astonishing picture which we are just beginning to unravel."

How far in the future is accomplishment of these medical predictions? A good index is prontosyl, the coal tar dye which seems so effective against the streptococcus. To the public prontosyl is a new medicine. It is a red dye invented in 1908. The chemical which kills the germs was added to the dye one year later. It was not put there to kill germs but to keep the color from fading.

After the dye proved useful as medicine it took years to discover that the effective part was this color preservative. * * *

A. P. H. A. MEETING IN NEW YORK

"Everyone in professional public health owes himself at least one interval in the year when he closes his desk, leaves his books and magazines to gather dust, and takes himself off to the place where everything of importance in public health will be discussed and where everybody of importance in the public health world will be on hand to take part in the discussions," reads an announcement from the American Public Health Association.

"That place is the annual meeting of the American Public Health Association and this year the point in time and the spot in space which will witness the assembly of the nation's health authorities are October 5-8, and New York City.

"The way programs and speakers are selected for the hundred-odd scientific meetings held in the four days assures only the best from the best. For a brief period, the earnest seeker after public health information needs only to keep his eyes and ears open to sense in their proper perspective what is being done and thought in the whole movement."

The opening General Session with Dr. Parran, Mayor LaGuardia, Governor Lehman and Dr. Farland on the platform promises to be an especially colorful affair, as does the Annual Banquet with

Dr. McCormack, President-elect, the after-dinner speaker.

There will be special sessions on Mental Hygiene, the Hygiene of Housing, and on Public Health Advancing.

Among the subjects chosen for joint sessions are Nutritional Problems, with the Child Hygiene and Food and Nutrition Sections; Water-Borne Diseases, with the Public Health Engineering and Epidemiology Sections; the Crippled Child, with the Child Hygiene and Public Health Nursing Sections and Syphilis in Industry, with the Industrial Hygiene and Public Health Nursing Sections.

There will be an intensive three-day Institute on Public Health Education before the annual meeting begins, sponsored by the Health Education Section and under the direction of Professor Ira V. Hiscock of Yale University.

The Scientific Trips Committee with all of New York's multitudinous official and non-official health agencies to choose from, is preparing a program of inspection trips that alone would merit attendance at the convention.

The American Association of School Physicians, the National Organization for Public Health Nursing, the Federation of Sewage Works Operators, and several other allied national groups will join with the American Public Health Association in a series of scientific sessions.

All inquiries should be addressed to the American Public Health Association, 50 West 50th Street, New York City.

VENEREAL DISEASE COURSE FOR PHYSICIANS

A special course on the handling of venereal disease will be offered to physicians at the University of California Medical Center, Third and Parnassus Avenues, San Francisco, beginning Monday evening, August 23. The meetings will be at 8 p.m., in room 437, fourth floor, University of California Clinics Building.

The course will consist of ten sessions to be held Monday and Friday nights for five weeks through September 24. The first two sessions will be devoted to bacteriology and pathology, the next three to the pharmacology of the drugs concerned, the next four to the practical clinical management and the final session to the public health aspects of the problem. Illustrated case material will be drawn from the clinics held regularly on Monday and Friday nights.

There will be no charge for this course of instruction. It is open to any qualified physician.

MORBIDITY**Complete Reports for Following Diseases for Week Ending July 10, 1937****Chickenpox**

195 cases: Alameda 8, Berkeley 18, Oakland 8, Piedmont 2, Contra Costa County 1, Fresno County 4, Westmoreland 1, Los Angeles County 9, Avalon 1, Culver City 1, Huntington Park 1, Inglewood 1, Long Beach 3, Los Angeles 42, Pasadena 2, Whittier 1, San Anselmo 4, Yosemite National Park 3, Monterey County 1, Orange County 5, Anaheim 1, Fullerton 3, Orange 2, Santa Ana 2, Tustin 2, Riverside County 1, Sacramento 3, Colton 1, San Diego County 1, National City 3, San Diego 15, San Francisco 22, San Luis Obispo County 2, San Mateo County 2, South San Francisco 3, Menlo Park 1, Santa Barbara County 1, Santa Barbara 4, Santa Clara County 2, Vallejo 2, Porterville 1, Ventura 3, California 2.*

Diphtheria

24 cases: Oakland 1, Fresno County 1, Kern County 1, El Segundo 1, Glendale 1, Long Beach 1, Los Angeles 5, Salinas 3, Orange County 1, San Bernardino County 1, San Bernardino 1, San Diego County 3, San Diego 1, San Francisco 1, San Jose 1, Ventura County 1.

German Measles

4 cases: Los Angeles 1, Laguna Beach 1, San Francisco 1, Santa Clara County 1.

Influenza

11 cases: Kern County 1, Los Angeles 4, Orange County 1, Brea 1, La Habra 1, San Francisco 3.

Malaria

5 cases: Oakland 1, Salinas 1, California 3.*

Measles

87 cases: Fresno 1, Kern County 1, Los Angeles County 2, Alhambra 2, Beverly Hills 2, Inglewood 1, Long Beach 1, Los Angeles 11, Mill Valley 1, Napa County 1, Orange County 3, Anaheim 9, Fullerton 1, Orange 1, Corona 4, Riverside 1, Sacramento 7, San Bernardino County 1, Redlands 2, San Diego County 3, National City 1, San Diego 3, San Francisco 1, San Joaquin County 1, Stockton 1, San Mateo County 4, Atherton 1, Santa Clara County 1, Sunnyvale 1, Stanislaus County 7, Tulare County 1, Ventura County 1.

Mumps

168 cases: Berkeley 18, Oakland 6, San Leandro 1, Inyo County 2, Bishop 5, Los Angeles County 2, Alhambra 1, Arcadia 1, Avalon 1, Burbank 1, Culver City 1, El Segundo 1, Glendale 3, Huntington Park 2, Long Beach 2, Los Angeles 13, Pasadena 1, Lynwood 1, South Gate 4, Marin County 2, Mill Valley 6, San Anselmo 2, San Rafael 1, Monterey County 2, Orange County 5, Fullerton 4, Santa Ana 3, Sacramento 2, San Bernardino 2, San Diego County 2, National City 3, San Diego 24, San Francisco 34, Daly City 1, Santa Barbara County 1, Santa Maria 1, Santa Clara County 1, San Jose 1, Sonoma County 1, Exeter 1, Ventura County 1, Ventura 1, California 1.*

Pneumonia (Lobar)

38 cases: Berkeley 1, Fresno County 2, Los Angeles County 4, Long Beach 1, Los Angeles 21, Torrance 1, Bell 1, Madera 1, Orange County 1, Santa Ana 1, San Bernardino County 2, San Diego 1, San Francisco 1.

Scarlet Fever

87 cases: Alameda 1, Berkeley 1, Oakland 4, Chico 1, Contra Costa County 1, El Cerrito 1, El Dorado County 1, Fresno County 2, Fresno 4, Kern County 2, Bakersfield 2, Los Angeles County 5, Compton 3, Glendale 1, Long Beach 3, Los Angeles 23, San Fernando 3, San Marino 1, South Gate 3, Orange County 2, Fullerton 2, Huntington Beach 1, Santa Ana 2, Sacramento County 1, San Diego County 1, San Diego 1, San Francisco 3, Stockton 1, Burlingame 1, Daly City 1, Santa Barbara County 1, Santa Barbara 1, Vacaville 1, Sonoma County 1, Stanislaus County 2, Tulare County 1, Porterville 1, Tulare 1.

Smallpox

5 cases: Berkeley 2, Monrovia 1, San Diego 2.

Typhoid Fever

13 cases: Oakland 1, Los Angeles 2, Sacramento County 2, San Joaquin County 1, Santa Barbara County 2, Modesto 1, Exeter 1, Tulare 1, Yuba County 1, California 1.*

Whooping Cough

345 cases: Alameda 1, Oakland 2, Contra Costa County 2, El Dorado County 1, Placerville 1, Fresno County 5, Fresno 5, Reedley 3, Selma 1, Glenn County 4, Kern County 3, Bakersfield 2, Lassen County 1, Los Angeles County 14, Alhambra 1, Arcadia 2, Claremont 2, Culver City 4, Glendale 4, Huntington Park 1, Long

* Cases charged to "California" represent patients ill before entering the State or those who contracted their illness traveling about the State throughout the incubation period of the disease. These cases are not chargeable to any one locality.

Beach 2, Los Angeles 78, Monrovia 5, Pasadena 17, Santa Monica 1, Madera 3, Marin County 2, Mill Valley 2, Mariposa County 5, Yosemite National Park 1, Orange County 2, Brea 3, Santa Ana 1, La Habra 2, Riverside County 8, Corona 1, Sacramento 13, San Bernardino 2, San Diego County 9, San Diego 10, San Francisco 39, San Joaquin County 8, Stockton 9, San Mateo County 8, San Mateo 2, Santa Barbara County 6, Lompoc 4, Santa Barbara 1, Santa Maria 1, Santa Clara County 21, San Jose 3, Modesto 3, Tehama County 1, Tulare County 3, Ventura County 5, Santa Paula 1, Yolo County 3, Woodland 1.

Meningitis (Epidemic)

5 cases: Burbank 1, Los Angeles 1, Madera 1, San Francisco 1, Santa Clara County 1.

Dysentery (Amoebic)

4 cases: Kern County 1, Los Angeles 1, San Luis Obispo 1, Tulare County 1.

Dysentery (Bacillary)

19 cases: Los Angeles County 1, Los Angeles 17, Santa Ana 1.

Pellagra

3 cases: Oakland 2, Riverside County 1.

Poliomyelitis

11 cases: Kern County 1, Glendale 1, Glendora 1, Long Beach 1, Los Angeles 3, Riverside County 1, Riverside 1, San Diego 1, Solano County 1.

Tetanus

3 cases: Kern County 1, Los Angeles County 1, Santa Ana 1.

Trachoma

12 cases: Los Angeles 3, San Francisco 1, Tulare County 3, Porterville 5.

Paratyphoid Fever

One case: Los Angeles.

Trichinosis

One case: Oakland.

Food Poisoning

69 cases: Los Angeles 60, Riverside County 6, San Diego 3.

Undulant Fever

4 cases: Orange County 1, San Bernardino 1, San Diego 1, Tulare 1.

Tularemia

2 cases: San Bernardino County.

Coccidioides Granuloma

2 cases: Kern County 1, Los Angeles 1.

Yaws

One case: California.*

Rabies (Animal)

35 cases: El Centro 1, Los Angeles County 7, Long Beach 1, Los Angeles 21, Redondo 1, San Marino 1, Los Banos 1, Redlands 1, Santa Cruz County 1.

Every stage of life calls for teaching. He who is beyond the need of it is already dead mentally. A trait of the person who achieves much is a strong interest in something, coupled with a disposition to respond to teaching, from whatever source it may come.

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